

CLAIMS

1. Material characterized in that it comprises the composition $\text{Si}_a\text{O}_x\text{N}_y\text{A}_z\text{M}_v\text{H}_u$ wherein $a > 0$, $x > 0$, $y > 0$, $v+z > 0$, $u \geq 0$, M is a chemical element of group 1 or 2, except H, or of group 11 or 12, and A is a chemical element of group 15 except N, or of group 16 except O.
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2. Material according to claim 1, characterized in that $z \geq y$ and/or $v \geq y$.
3. Material according to claim 1 or 2, characterized in that the refractive index n is approximately at least 0.1 larger than that of silica, preferably the silica usable in a cladding of a lightwaveguide.
- 10 4. Material according to one of claims 1 to 3, characterized in that $v > 0$ and the atoms of the chemical element M are interstitially incorporated into the matrix of SiON.
5. Material according to one of claims 1 to 4, characterized in that the atoms of the chemical element M and/or atoms of the chemical element A effect the transformation of NH bridges into hydrogen-free bridges and/or avoidance of NH bridges.
- 15 6. Material characterized in that it comprises essentially SiON in which instead of one or several Si-atoms the respective number of atoms of a different element is incorporated and/or in which atoms of a different element are added, such that at least one hydrogen-free nitrogen bridge occurs.
7. Material according to claim 6, characterized in that by the different element at least one
20 NH bridge is transformed into the hydrogen-free bridge.
8. Material according to claim 6 or 7, characterized in that the different element which is incorporated instead of Si is a chemical element of group 15 or 16 except N and O, and/or the different element which is added is a chemical element of group 1, 2, 11 or 12, except H.

9. Material according to one of claims 1 to 8, characterized in that at least a part of the N atoms is coordinated to only two different atoms.
10. Material according to one of claims 1 to 9, characterized in that it has a structure similar to the structure of SiO₂.
- 5 11. Use of a material according to one of claims 1 to 10 as optical-waveguide material and/or as gate-isolating material and/or as transparent material.